

2015 Product of the Year Awards!

# the absolute sound

STUNNING  
TRANSPARENCY!

## MartinLogan's Mighty Neolith

22 EQUIPMENT REVIEWS!

Spendor, Pass Labs, PS Audio,  
D'Agostino, Sonus faber, CH Precision,  
and 13 Other Top Brands

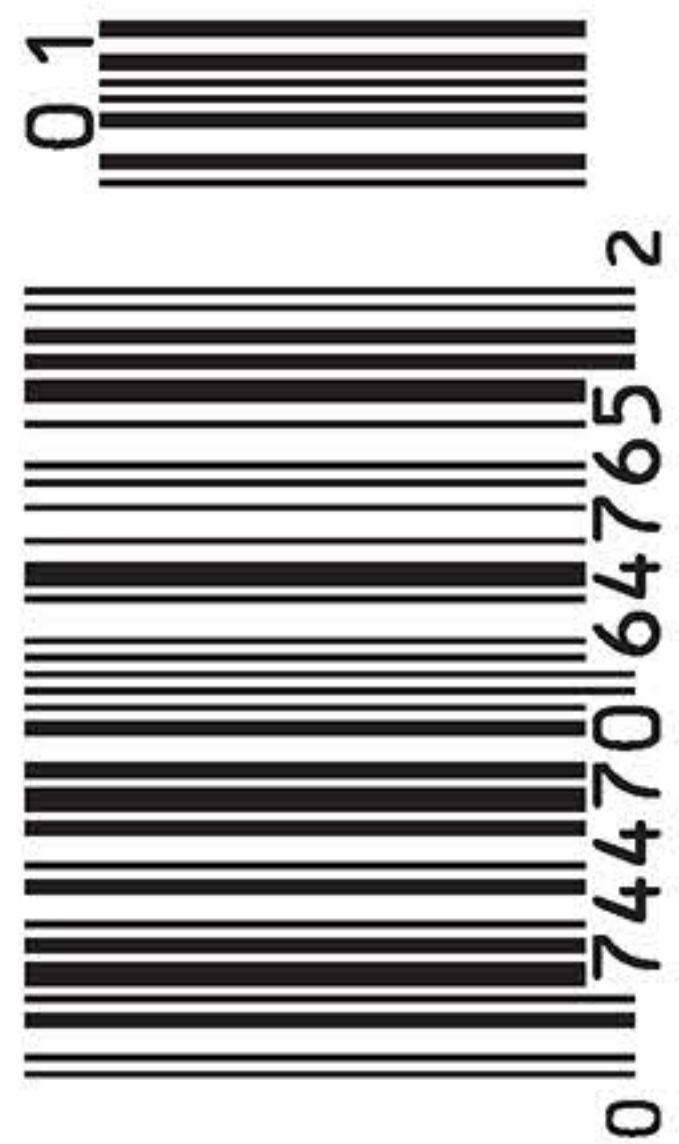
Exotic New Gear at  
the Tokyo Show

15 PAGES OF MUSIC REVIEWS

Isaak, Gardot, Brubeck, Miles,  
and Charlie Parker

The Best Hi-Res Downloads

JANUARY 2016  
\$6.99 US / \$6.99 CAN



DISPLAY UNTIL JANUARY 20TH 2016

# Contents

206

## MartinLogan Neolith Electrostatic-Hybrid Loudspeaker

Thirty-three years after first championing the hybrid-electrostatic loudspeaker, MartinLogan has brought the technology to its zenith in the massive Neolith. Robert Harley reports.

39

## The Absolute Sound's 2015 Product of The Year Awards

This is the big one! We celebrate the finest products of 2015 in these, our most prestigious awards.

### the absolute sound<sup>®</sup>

EDITOR-IN-CHIEF  
**Robert Harley**

EXECUTIVE EDITOR  
**Jonathan Valin**

ACQUISITIONS MANAGER AND ASSOCIATE EDITOR  
**Neil Gader**

MANAGING AND DIGITAL CONTENT EDITOR  
**Julie Mullins**

MUSIC EDITOR  
**Jeff Wilson**

CREATIVE DIRECTOR  
**Torquil Dewar**

ART DIRECTOR  
**Shelley Lai**

PRODUCTION  
**Rachel Holder**

theabsolutesound.com WEBMASTER  
**Garrett Whitten**

#### SENIOR WRITERS

**Anthony H. Cordesman, Wayne Garcia, Jim Hannon, Robert E. Greene, Ted Libbey, Arthur Lintgen, Dick Olsher, Andrew Quint, Don Saltzman, Paul Seydor, Steven Stone, Alan Taffel, Greg Weaver**

#### REVIEWERS AND CONTRIBUTING WRITERS

**Duck Baker, Soren Baker, Greg Cahill, Stephen Estep, Vade Forrester, Jacob Heilbrunn, Andre Jennings, Mark Lehman, Sherri Lehman, Dave Martson, David McGee, Kirk Midtskog, Mark Milano, Bill Milkowski, Derk Richardson, Karl Schuster**

**Reprints:** Brett Petillo, Wright's Media, (877) 652-5295, 281-419-5725, bpetillo@wrightsmedia.com.

**Subscriptions, renewals, changes of address:** 888-732-1625 and outside the U.S. 760-317-2327 or write The Absolute Sound, Subscription Services, PO Box 469042, Escondido, CA 92046.

**Ten issues:** in the U.S., \$29.90; Canada \$45.90 GST included; outside North America, \$64.90. Payments must be by credit card (VISA, MasterCard, American Express) or U.S. funds drawn on a U.S. bank, with checks payable to NextScreen, LLC.

**Address letters to the editor:** The Absolute Sound, 2601 McHale Court #100, Austin, TX 78758 866 846-3997 or e-mail: rharley@nextscreen.com

**Newsstand Distribution and Local Dealers:** Ingram Periodicals, 18 Ingram Blvd, LaVergne, TN 37086-7000 615 213-5223

**Publishing matters:** contact Jim Hannon at the address below or e-mail jhannon@nextscreen.com



VICE PRESIDENT/GROUP PUBLISHER  
**Jim Hannon**

NEXTSCREEN CHAIRMAN AND CEO  
**Tom Martin**

#### ADVERTISING REPS

**Cheryl Smith (512) 891-7775**  
**Marvin Lewis (718) 225-8803**  
(MTM Sales)

**Scott Constantine**  
**(609) 275-9594**

**Publishing matters:** contact Jim Hannon at the address below or e-mail jhannon@nextscreen.com  
Publications Mail Agreement 40600599  
Return Undeliverable Canadian Addresses to: Station A / P.O. Box 54 / Windsor, ON N9A 6J5  
NextScreen, LLC, 2601 McHale Ct., Ste 100, Austin, TX 78758.  
(512) 892-8682 fax: (512) 891-0375,  
tas@nextscreen.com, info@theabsolutesound.com

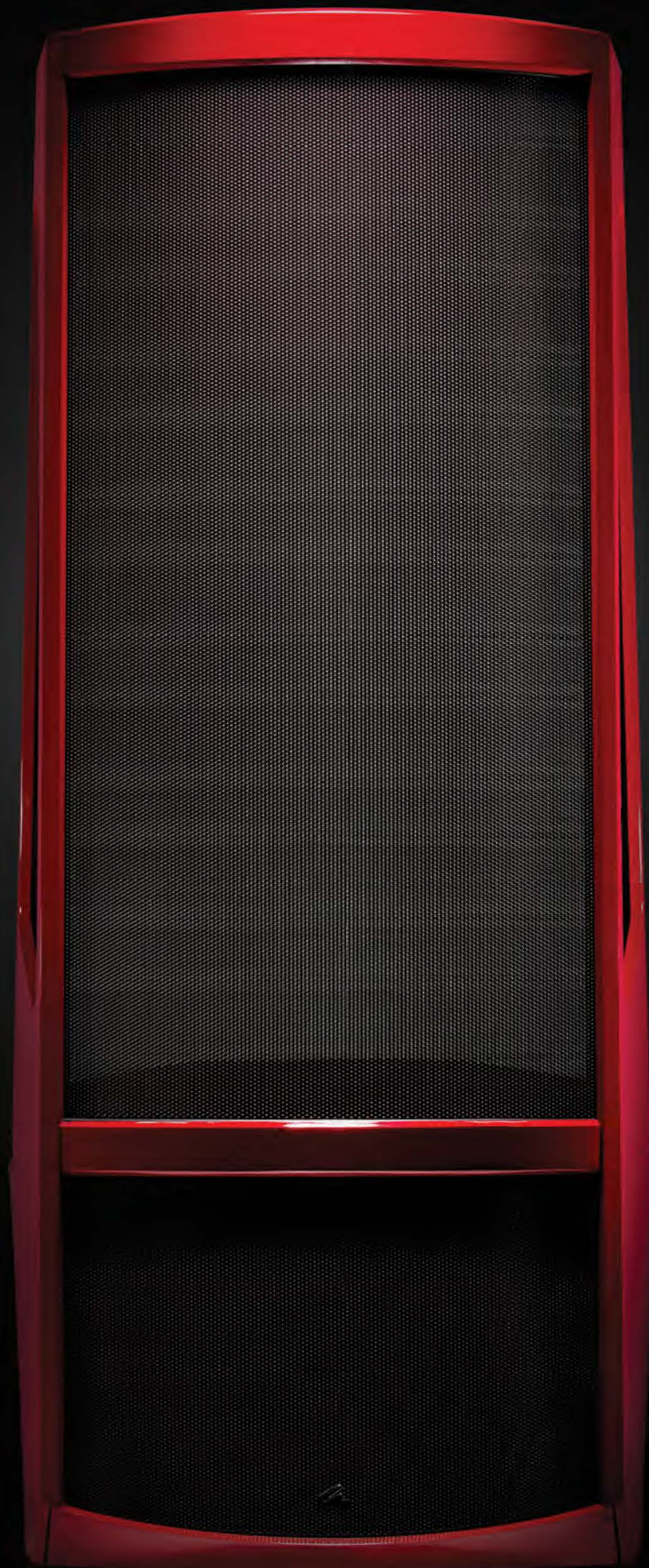
©2016 NextScreen, LLC., Issue 259 January 2016. The Absolute Sound (ISSN #0097-1138) is published 10 times per year in the months of Jan, Feb, Mar, April, combined issues in May/June & July/Aug, Sept, Oct, Nov, and Dec, \$29.90 per year for U.S. residents, NextScreen, LLC, 2601 McHale Ct., Ste 100, Austin, TX 78758. Periodical Postage paid at Austin, Texas, and additional mailing offices. Canadian publication mail account #1551566 POSTMASTER: Send address changes to The Absolute Sound, Subscription Services PO Box 469042 Escondido, CA 92046. Printed in the USA.

## THE ABSOLUTE SOUND'S 2015 OVERALL PRODUCT OF THE YEAR (tie)

## MartinLogan Neolith Loudspeaker

**\$80,000**

MartinLogan swung for the fences with the new Neolith, mounting a roughly 4' x 2' XStat electrostatic panel atop an enclosure that houses a front-firing 12" driver and a 15" rear-firing woofer. One would think that this pairing of two big cone woofers with the ultra-low-mass electrostatic panel would be a recipe for disaster, but MartinLogan has somehow created a product that speaks with one voice. And what a voice it is! The Neolith is simply sensational in its ability to present instruments and vocalists as tangible objects in space. This palpability of images is as good as it gets, in RH's experience. The Neolith is also off the charts in transparency to sources, fostering the impression of eavesdropping on a musical conversation. These speakers simply disappear in every sense of that word, giving no indication that the music is being reproduced by electromechanical contrivances. The resolution of fine detail must be heard to be believed, particularly the finest transient detail that infuses the sound with immediacy and believability. Those two huge electrostatic panels, driven over their entire surface area, are tailor-made for reproducing the sweep and grandeur of large-scale music. Yet the Neolith can sound small and intimate when called for. The mid/bass mates seamlessly with the panel, and then the rear-firing woofer takes over to deliver plenty of powerful extension and weight. The Neolith has many other factors in its favor. This speaker is beautifully built and finished (available in seven colors), highly flexible in room-matching, and backed by a solid company with 33 years of experience in building electrostatic loudspeakers. It's also, if RH dares say it, a bargain at \$80,000. Although a lot of money by any standard, the Neolith competes in the upper echelon of today's best cost-no-object loudspeakers. The Neolith is an unqualified triumph, and an easy choice for *The Absolute Sound's* Overall Product of the Year. RH, review in this issue





MartinLogan Neolith Electrostatic-Hybrid Loudspeaker

# The Sword in the Stone

Robert Harley

Photography by Dennis Burnett



**T**he last MartinLogan speaker I had in my home was the Sequel back in the early 1990s. Despite some laudable attributes, its sound wasn't compelling enough to convert me into an electrostatic devotee. True, the Sequel exhibited some of that magical transparency for which 'stats are famous, but the Sequel's electrostatic panel didn't blend all that well with its dynamic woofer. The cone simply couldn't keep up with the 'stat in timbre and transient fidelity. Consequently, the bass sounded like an appendage being dragged around behind the rest of the music. The bottom-end's character was so different that every time the bass drum went off I instinctively looked down toward the sound's source. In addition, there was no getting around the lack of upper-bass/lower-midrange warmth and body, another consequence of an imperfect transition from panel to cone. Nonetheless, the Sequel and the Sequel II were great commercial successes.

But that was nearly 25 years ago, and to say that in the interim MartinLogan has been working on improving the electrostatic panel and its integration with dynamic woofers would be a colossal understatement. In fact, the company has pursued advancements in its core technologies with a single-minded zeal. In particular, Joe Vojtko, MartinLogan's "Chief Audio Technologist," has for the past 25 years led a team of engineers in pushing forward the state of the art in electrostatic design. Equally important, the team has worked on the seemingly intractable problem of mating an electrostatic panel to cone woofers to create a truly coherent, full-range loudspeaker system that speaks with one voice. Designing an electrostatic speaker is one challenge, but it's an entirely different set of hurdles to create a hybrid electrostatic/dynamic speaker that has the weight, power, body, visceral impact, bass extension, and bottom-end dynamics of the best cone-based speakers. In fact, this challenge is audio's equivalent of the Arthurian legend of the "sword-in-the-stone"—the seemingly impossible task of withdrawing the sword Excalibur from solid rock. But just as in legend, whoever accomplished this feat was ordained to discover the Holy Grail—in this case, the realization of a world-class loudspeaker that seamlessly mates the electrostatic's famous transparency, resolution, and speed with truly full-range frequency response and dynamics.

MartinLogan's Neolith considered here is the culmination of the company's 33-year quest to perfect the electrostatic speaker. The Neolith's name is a nod to its antecedent, the Monolith, the hybrid speaker that put MartinLogan on the map in 1983. Unlike many high-end companies that have been sold by their founders, MartinLogan has benefited from being acquired. The parent company has invested

heavily in R&D as well as the specialized equipment and highly skilled labor needed to build large electrostatic transducers. As a result, MartinLogan has continually pushed its technology forward, most notably with its XStat electrostatic panel (see the accompanying interview with Joe Vojtko). This newer panel design represents a significant improvement over its predecessor, and has been employed with great success in the \$25,495 CLX full-range 'stat, the \$14,999 hybrid Summit X, and the \$9995 hybrid Montis. All those speakers have received not just rave reviews in these pages, but have been repeatedly singled out by reviewers as rising above the competition. Jonathan Valin reviewed the CLX in Issue 190's cover story, and was so enamored with them that he bought the review samples. Dick Olsher uses the Summit X as his reference.

The improvements to the electrostatic panel have been significant, but the work ML has done on blending the cone woofer with the electrostatic panel through careful crossover design (as well as the choice of woofer and how that woofer is loaded in the enclosure) has been just as important. Today's Summit X and Montis deliver far better woofer integration than earlier generations of hybrids.



But it's the massive and ambitious Neolith that takes all these technologies to their ultimate realization. This flagship speaker mounts a 48" x 22" CLS XStat panel atop an enclosure that houses a front-firing 12" woofer and a rear-firing 15" driver. Previous MartinLogan hybrids have used smaller panels and 8" or 10" woofers; the Neolith is clearly aiming much higher. The Neolith's 12" woofer is mounted in a sealed enclosure and operates down to 60Hz; the rear-firing fifteen-incher is vented with two large ports, and handles frequencies below 60Hz. This is clearly a statement-level product designed to compete in the top echelon of today's world-class loudspeakers. At first glance, and in theory, it may seem like a fool's errand, or a recipe for disaster, to combine a 15" ported woofer with a nearly massless panel. But that was the design brief, and MartinLogan worked tirelessly to bring the Neolith to fruition.

Let's look at some of the Neolith's physical features and practical considerations before talking about how it sounds.

First, you should know that this is a big and imposing loudspeaker. Even though most of the Neolith is visually transparent, it nonetheless draws attention to itself by its sheer physical presence. The angular cabinet that houses the two woofers and supports the panel is substantial. MartinLogan offers the Neolith in seven colors, ranging from the same red found on Ferraris to a subtle silver. Two pairs of WBT binding posts are provided for bi-wiring or passive bi-amplification. Keep in mind that you'll need to plug each Neolith into an AC wall outlet. The power draw is nominal—1W in standby and 15W in operation. The speaker automatically turns on when an audio signal is detected, and turns off when no signal is present for a specified time. The Neolith requires AC power to generate the polarizing voltages which create the electrostatic force that, when modulated by the audio signal, pulls and pushes the thin diaphragm back and forth. A recessed area in the woofer enclosure's top panel provides a number of useful adjustments. By inserting jumper bars between pairs of holes, you can attenuate the bass by 4dB or 8dB (in addition to the flat setting) as well as adjust the crossover frequency between the panel and the 12" woofer, from 250Hz to 400Hz, in three steps that



**"It all adds up to a recipe for coherence, resolution, transparency, and transient fidelity."**

correspond to listening distances of 3m or less, 4m, or 5m or more. The greater the listening distance, the higher the crossover frequency should be. In my setup we opted for the lowest setting, 250Hz.

Sensitivity is fairly high at 90dB, but that figure is measured with a 2.83V input rather than the standard 1W, which, with a four-ohm (nominal) speaker such as the Neolith, increases the sensitivity rating (but not the actual sensitivity) by 3dB. That's because 2.83V across 8 ohms dissipates 1W of power and 2.83V across 4 ohms dissipates 2W of power, thus making the speaker appear to be 3dB more sensitive than it actually is, since it takes twice the power to drive it to the same loudness level compared with a speaker measured with a drive signal specified as 1W. Although 90dB sensitivity is on the highish side, don't think that the Neolith will be easy to drive. Its impedance drops with frequency, reaching a low of 0.46 ohms at 20kHz. Moreover, the load the Neolith





coil former, surround, and the glue holding it all together, the electrostatic speaker's diaphragm is virtually massless. The diaphragm's excellent transient fidelity is not merely the result of its lightness; the diaphragm is driven uniformly over its entire surface area. And that surface area is massive—more than 1000 square inches in each Neolith. A large radiating surface area means the excursion (how far the diaphragm moves back and forth) is proportionately lower for a given sound-pressure level, and presumably, that much more linear. Also, keep in mind that an electrostatic panel is a push-pull device, with one stator pushing the diaphragm while the other is pulling. It all adds up to a recipe for coherence, resolution, transparency, and transient fidelity.

presents to an amplifier is highly capacitive. The combination of the 0.43-ohm impedance and a capacitive phase angle will present quite a challenge to most power amplifiers. Don't even think about driving the Neolith with anything but a stout amp that can deliver a lot of current into a low-impedance load. In fact, if you're considering the Neolith you should audition it with the amplifier with which you intend to drive it.

I must commend MartinLogan for producing what is the most useful, informative, and easy-to-understand owner's manual I've seen in a very long time. It's a model of clarity and comprehensiveness.

Before I get to my listening impressions, it's worth considering the manifold virtues of an electrostatic-dynamic hybrid loudspeaker. The first is the fact that nearly the entire frequency range (250Hz–22kHz, in the Neolith's case) is reproduced by a single transducer, with no crossover within that range. This means there's no discontinuity between disparate drivers, and no crossover in the critical midrange frequencies. Second, the electrostatic panel's diaphragm is extremely light. The diaphragm in the Neolith is just 12.7 microns thick, or about one-sixth the diameter of a human hair. Low mass means low inertia, allowing the diaphragm to respond quickly to transient signals, and to stop equally quickly. Compared with a conventional driver's cone, voice coil, voice-



## Listening

The Neoliths settled into my system quite easily, with a minimum of tweaking. After rolling them out of their massive crates and into position, we (two MartinLogan representatives and I) removed the casters and put the Neoliths on furniture sliders to dial-in their final positions. Next, the spiked

feet were installed. After a bit of listening and experimenting with the distance control and the bass-level adjustment, we settled on a flat bass setting. The bottom end was just a little over-full at the flat setting, but I found the sound preferable to the lighter-weight presentation of the -4dB setting. The back of the enclosure was 53" from the wall behind it. Toe-in angle was minimal to moderate.

I drove the Neolith with my usual sources (see Associated Components), and alternated between the Constellation Audio Altair 2 preamplifier and Hercules 2 mono power amplifiers on one hand, and the Soudation 725 preamplifier and 701 mono power amplifiers on the other. Both amplifiers are powerhouses (1100W into 8 ohms for the Constellation, 600W into 8 ohms for the Soudation), and neither had a problem with the Neolith's half-ohm impedance at 20kHz.

## “What really sets the Neolith apart is its resolution.”

If the goal of high-end audio is to create in your home the impression of hearing actual instruments, with all their vividness, life, detail, and dimensionality intact, then the Neolith must surely come close to achieving that goal. This loudspeaker reproduces instruments and voices with staggering immediacy and realism. It strips away the mechanical artifice of most other loudspeakers, leaving behind a palpable impression of instruments floating in space. The sense of transparency, of hearing through the playback and recording chains to the original musical event, is revelatory. The Neolith seems to pull off this magic trick effortlessly, as though such legerdemain were simply part and parcel of its nature. Moreover, it doesn't do this on occasion, with specially selected discs; rather it brings music to life over a huge range of recordings, good and bad.

For instance, I love the album *Sunflower* by vibraphonist Milt Jackson, accompanied by Freddie Hubbard, Herbie Hancock, Ron Carter, Billy Cobham, and on some tracks a chamber orchestra playing arrangements by Don Sebesky. Unfortunately, the sonics on this album are poor; the sound is closed down and “hooded,” particularly on the piano. Although the Neolith laid bare this recording's flaws, it also laid bare the extraordinary musicianship that makes this disc such a standout.

The speakers truly disappeared in every sense of that word, providing an intimate window on Hancock's funky Rhodes work that underpins the track “People Make the World Go Round,” the gorgeous juxtaposition of the chamber group's woodwinds, reeds, and strings with Hubbard's trumpet lines on the title track, and the way Jackson explores a melody from all angles in his brilliant solos. Sitting in front of the Neolith made me feel like an eavesdropper on spontaneous musical creation.

The Neolith was simply sensational with well-recorded voices. One of my references is Jennifer Warnes' *The Hunter* [Impex LP] and the track “Somewhere, Somebody.” Her voice wasn't being reproduced by two electromechanical contrivances; she was standing directly between the speakers. Forget about box coloration, driver discontinuity, and cone break-up—this is as pure and unadulterated as music reproduction gets through the midrange. Not only was Warnes' voice unencumbered tonally and dynamically, the sense of vivid presence and palpability was astonishing. This tangibility was magnified by the tendency of the Neolith to sound a little forward and assertive in the midband, with a fully fleshed-out brilliance range. This is not a laid-back, reticent-sounding loudspeaker.



The Neolith doesn't, however, sound “skeletal” in the way that some electrostatics can; neither is it overly warm and saturated.

As focused and intimate as the Neolith was reproducing an unaccompanied voice, it was just as expansive on big music. Those two huge panels present certain instruments and ensembles with a magnificent grandeur and scale that small loudspeakers, no matter how good, simply fail to convey. The amazingly recorded piano on Bruce Katz's New-Orleans-inflected *Crescent Crawl* [AudioQuest LP] had a power, weight, authority, and sense of size you just don't get from most box speakers. The sheer physicality of left-hand piano lines and crashing chords brought to life the piano's size and majestic power. Large ensembles and full-sized orchestras were well served by the Neolith's “bigness.” This sense of size wasn't just conveyed in conventional terms by width and depth (although the Neolith has those qualities in spades), but also by the size and power of instruments and ensembles.



## “Not surprisingly, the Neolith was stunningly fast, reproducing transients with lifelike speed.”

The Neolith’s 6'-plus height contributed to a soundstage that extended higher than that of most speakers.

Not surprisingly, the Neolith was stunningly fast, reproducing transient information with lifelike speed. It wasn’t just transient leading edges that were faithfully portrayed, but also trailing edges. That is, sounds started and stopped with equal precision. As a result, the music had a sense of life and verve, with no smearing of dynamic inflections. Little things, like the edge of a drumstick gently tapping on a cymbal, were so vivid and alive they stood out from the mix. Percussion was simply sensational—the timbales on the outstanding Mobile Fidelity reissue of Santana’s *Abraxis*, for example, sounded like they were in the room with me. The snare drum that drives the martial rhythm of “Mars” from *The Planets* (Mehta, LA Philharmonic, LP reissue) was astonishingly crisp and precise, cutting through from the back of the soundstage. Hearing the Neolith’s reproduction of this piece gave me a greater appreciation for the orchestra’s rhythmic precision. Acoustic guitar was particularly well served, with notes seemingly jumping out of thin air, without inducing the fatigue of box speakers that achieve apparent transient speed by way of an unnatural emphasis on transient leading edges. The way that the guitar’s string caused the air inside the instrument’s body to resonate and then decay was revealed with crystalline transparency.

The treble was exquisitely detailed, filigreed with an ethereal delicacy. The Neolith resolved the fine micro-dynamic structure of cymbals, a violin’s upper harmonics, tambourine, and saxophone with no trace of the grain, etch, or metallic flavor often heard from box speakers.

by juxtaposition. The Neolith goes a long way toward dispelling the notion that planar transducers lack force. The Neolith supplied plenty of impact and weight behind transients, perhaps by virtue of the panel’s size; nonetheless, it didn’t pack the punch of the best cone speakers. That said, I never felt something was missing on any type of music.

As impressive as all the characteristics I’ve described are, and as important as they are to musical communication, what really sets the Neolith apart is its resolution. By resolution I mean the Neolith’s ability to convey everything that’s going on in a recording, from instrumental timbre, to the separation of individual instrumental lines, to micro-dynamic shadings, to the puff of air around image outlines, to transient information, to the space in which the recording was made. All is laid out in ravishing detail. The Neolith was particularly adept at clearly resolving every instrumental line, even within the most complex passages. I was continually amazed to hear previously buried instrumental parts in familiar music with such vivid clarity. The intricate horn arrangements of Gordon Goodwin in his modern interpretation of big band music, for example, were suddenly much more intelligible. The Neolith “de-homogenizes” the music and, in doing so, allows much more of the musicians’ intentions to be revealed.

Because the Neolith is so high in resolution, it will reveal every single aspect of the signal feeding it. It’s a microscope on your front end, amplification, AC power, cables, and vibration isolation. No sources or amplifiers are “too good” for the Neolith; an investment in top-quality sources and electronics won’t go to waste. With the Constellation electronics driving the Neolith, I heard the most highly resolved musical presentation I’ve ever experienced. The Constellation electronics are unbelievably transparent and detailed, qualities that combined synergistically with the Neolith to reveal even the finest bit of musical information. You may think that this combination may be too much of a good thing—at some point resolution degenerates into mere clinical analysis. But that wasn’t the case. Every increase in transparency in my system resulted in hearing more musical expressiveness, creating greater engagement with and immersion in the music. There was no trace of etch or coldness, and no longing for a less detailed, more “musical” rendering.

Listen to the cymbals on the 45rpm Analogue Productions reissue of Dave Brubeck’s classic *Time Out* and you’ll hear a full measure of treble energy and vitality without the sense of tension that most dome tweeters produce.

One of the knocks against planar loudspeakers (including electrostatics, planar-magnetic drivers, and true ribbons) is that, while fast and detailed, they don’t deliver the same dynamic force and impact behind transients. Drum sticks hitting drum heads, for example, don’t have quite the transient pop they have with full-range dynamic speakers. This shortcoming can be exacerbated in hybrid systems in which bottom-end dynamics, reproduced by cone woofers, call attention to the planar’s dynamic shortcomings

None of this would matter if the Neolith's cone-woofer bass had ruined coherence by calling attention to the discontinuity between it and the electrostatic panel. But it didn't. Rather, the front-firing 12" woofer, which handles the transition from the panel to the 15" rear-firing driver over two octaves from 60Hz to 250Hz, smoothly integrates with the panel and produces a sound that is truly consistent from top to bottom. Even the low bass sounds "of a piece" with the midwoofer and the panel.

You look at the massive rear-firing 15" driver, along with those two huge ports, and think that there's no way that it will blend seamlessly with an electrostat. But it does. The Neolith's low bass isn't as hard-hitting, taut, and defined as that of some of the best box speakers, but the glorious mids and treble more than make up for this. Plus, the combination of the two woofers and the massive panel allows the Neolith to play any type of music, at any listening level, with utter ease.

As you can see, I greatly enjoyed my time with the Neolith. They delivered hour after hour of sheer musical delight, across a wide range of music and styles. But perhaps the most memorable experience I had with them, and one that speaks volumes about the Neolith's fundamental attributes, was when I called up a rip of a straight-ahead jazz CD I had engineered (*Confirmation* by the Chiz Harris Quartet) live to two-track. The Neolith brought out specific aspects of the sound, including the golden burnished timbre of Conti Candoli's flugelhorn, the woody body of the doublebass, and the rich detail of the cymbals. Listening to this recording through the Neolith was revelatory; I was clearly hearing things that I had never heard from any other playback system. But beyond these specific improvements, what really struck me was how the Neolith conveyed the live feel and energy of spontaneous music-making, as it actually happened at the session. Seconds into the first track I experienced a frisson of excitement as the memory of the session was suddenly brought back to vivid life by the Neolith. The recording was supposed to be the Chiz Harris Quartet, but Chiz invited his friend, the great trumpet player Conti Candoli (of the Woody Herman, Stan Kenton, Dizzy Gillespie, Benny Goodman, and *Tonight Show* bands), to drop by the studio to listen in, if he had some spare time. Candoli not only showed up, he brought his horn. Without rehearsal with Candoli, the group (which included Supersax member Jay Migliori on tenor) launched into ten-minute-plus free-flowing renditions of be-bop classics such as Charlie Parker's "Confirmation." The impromptu contribution of Candoli, the improvisational nature of the music, the talent of these veteran musicians, and the live-to-two-track technique contributed to the feeling of raw musical energy captured on tape. I've used this recording for years in evaluating equipment, but I've never before felt as vividly transported back to the original musical performance as I did when listening to it through the Neolith.

## Conclusion

MartinLogan's Neolith is a world-class product, taking its place in the upper echelon of today's best loudspeakers. The Neolith's transparency to sources, resolution, coherence, transient fidelity, and lifelike sense of presence and immediacy are as good as they get. In short, the Neolith is as colorless a loudspeaker as I've heard.

The blend between the electrostatic panel and dynamic woofer is masterfully executed, belying its hybrid nature. The bass

integrates with the panel to an extent I did not think possible. The low bass may not have quite the tautness and impact of some cost-no-object cone loudspeakers, but that deficiency pales beside the Neolith's state-of-the-art midrange and treble.

The build-quality and finish are superb, and the product is backed by a solid company with a 33-year track record. Those are important considerations when making an investment of this magnitude.

The Neolith is an unqualified technical and musical triumph. It's also more than fairly priced at \$80,000. Although that's a huge amount of money by any standard, I can name off the top of my head about ten speakers (more if I thought about it) that cost far more and that I wouldn't choose over the Neolith. MartinLogan has successfully blended its electrostatic panel technology with dynamic woofers to create a truly full-range, coherent loudspeaker—finally succeeding in the audio equivalent of pulling the sword from the stone.

## SPECS & PRICING

**Type:** Three-way electrostatic/dynamic hybrid loudspeaker

**Frequency response:** 23Hz-22kHz +/-3dB

**Recommended amplifier power:** 50-1300Wpc into 4 ohms

**Sensitivity:** 90dB, 2/83V/m

**Impedance:** 4 ohms nominal, 0.43 ohms minimum at 20kHz

**Crossover frequencies:** 60Hz, 250-400Hz (variable)

**Mid/high-frequency driver:** 48" x 22" CLS XStat electrostatic

**Woofers:** 12" carbon-fiber sandwich (front-firing); 15" aluminum-cone (rear-firing)

**Woofer loading:** Sealed (front-firing 12"); ported (rear-firing 15")

**Bass control:** 0dB, -4dB, -8dB

**Distance control:** 3m (or less), 4m, 5m (or more)

**Power consumption:** 1W (standby), 15W (maximum)

**Dimensions:** 30.3" x 74.8" x 34.2"

**Weight:** 385 lbs. each (net); 600 lbs. each (crated)

**Price:** \$80,000/pr.

### ASSOCIATED EQUIPMENT

**Amplification:** Constellation

Audio Altair 2 preamplifier

and Hercules 2 monoblock

power amplifiers; Soultion

725 preamplifier and 701

monoblocks

**Digital front end:** Aurender

W20 music server, Berkeley

Alpha Reference DAC,

Berkeley Alpha USB converter

**Analog front end:** Basis

Inspiration turntable, Air

Tight PC-1 Supreme cartridge,

Moon by Simaudio 810LP

phonostage

**Support:** Critical Mass Systems

Maxxum equipment racks (x2),

Maxxum amplifier stands (x2)

**Cables:** MIT Oracle MA-X and

Oracle SHD, AudioQuest Wild

Digital AES/EBU, WireWorld

Platinum Starlight USB

**AC:** Four dedicated 20A AC

lines; Shunyata Triton 2, Triton

DP, Typhon (x3) conditioners,

Shunyata Sigma power cords

**Acoustics:** ASC 16" Full-Round

Tube Traps, ASC Tower Trap,

Stillpoints Aperture Panels

**Accessories:** Klaudio ultrasonic

record cleaner; Shunyata cable

lifters, Critical Mass Systems

Rize isolation

# MartinLogan's "Chief Audio Technologist" Joe Vojtko Talks with Robert Harley about the Neolith's Design

## How long have you been at MartinLogan, and what is your role?

I've been here over 25 years. I started doing electronics assembly before moving into engineering. I've been doing electronic and acoustic design since then.

## You've apparently made a big contribution, because the crossovers in the Summit X, Montis, and Neolith are called the "Vojtko Crossovers."

The marketing people thought that would be a good name to put on the crossover. It's not a particular technique, but rather the culmination of everything we've learned over the past 25 years in achieving a blend between the electrostatic panel and the woofer.

## How long has the Neolith been in development?

We've been working on it for about three years. We've had two mechanical engineers, and I have a counterpart in acoustics who worked on the woofer development. I was working on the electronics and the voicing. We also have a technician, a couple of managers, and our cabinet guy who built the various prototypes. It's taken a lot of people, all working together.

## Tell me about the advances in the XStat transducer. What makes it better than the previous generations of panels?

We've had the XStat for over ten years now. The previous generation had the bigger holes [*in the stators*], and it was manufactured a little differently. The XStat gets vacuum-pressed after it's made, which allows us to control the tolerances in the gap between the diaphragm and the stators. We have much better left-right matching. The XStat panels also have higher sensitivity. We also started using clear spars [*the intermittent spacers between the diaphragm and the stators*], which makes the panels look more transparent.

## Let's talk about the challenge of mating an electrostatic panel with dynamic woofers, and what techniques you used to address that challenge.

We used the same technique we've been using for years. It boils down to having a crossover that matches the phase correctly and gives a good overall response in a room.

## But the Neolith is the first time you've attempted to do it on this scale.

I was involved in the Statement E2 project back in the 90s. That was also very ambitious. [*The MartinLogan Statement was a massive four-piece hybrid system with woofers in separate column enclosures.*]

Well, we've learned a lot since the days of the Sequel. That was 25 years ago. Today's computer-driven measurement equipment is so much better.

## True, but the blend between the dynamic woofer and the ESL panel is so much better in the Neolith than in the Statement or, particularly, in the Sequel. What's different today?

Well, we've learned a lot since the days of the Sequel. That was 25 years ago. Today's computer-driven measurement equipment is so much better. Back then we were using a TEF 12, which ran on a five-inch floppy drive. We now have a custom program that provides an analysis of the speaker's performance in a room and in echo-free half-space.

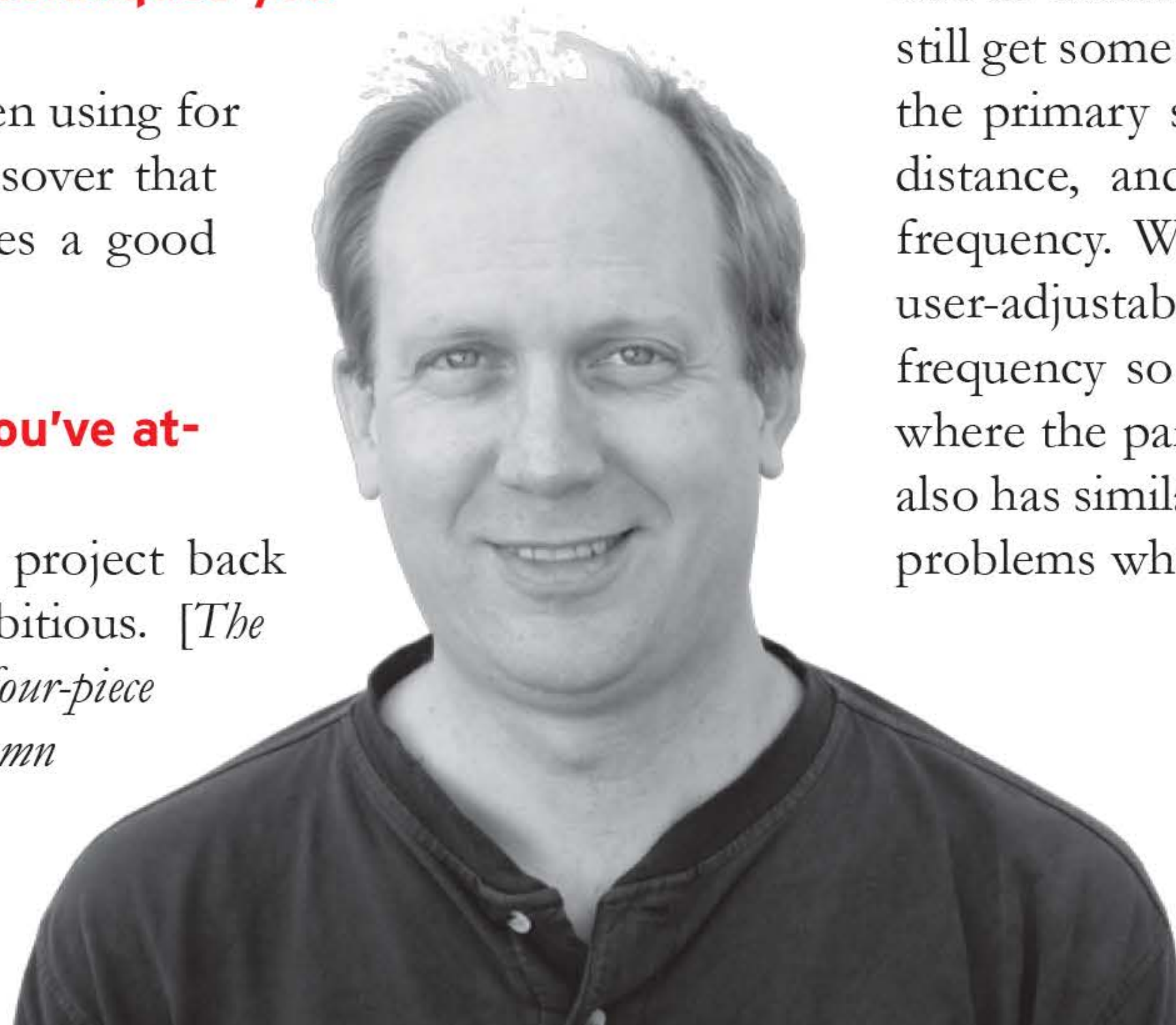
There's really nothing different about how you handle the woofer other than tailoring the low-pass filter so that it mates to the ESL panel. We also spent a lot of time researching the highest-quality woofers we could for the Neolith. They are quite advanced, with carbon-fiber cones. The front woofer has an edge-wound voice coil, and has very high efficiency. All the woofers in the hybrid systems are custom-spec'd for the particular product for the particular 'stat panel.

## Could you talk about the decision to put the 12" woofer in the sealed enclosure and the 15" in a reflex enclosure?

Making a speaker that plays down to the 20Hz range passively [*without integral amplification and equalization*] in the size enclosure we had specified dictated that we use a ported enclosure. So we used a front woofer in a sealed enclosure that mates well with the panel, and crossed that over to the rear 15" woofer that can play deeply and cleanly.

## Could you explain the Neolith's adjustable crossover frequency between the panel and the front-firing 12" woofer?

At greater listening distances in larger rooms, we'd see the lower frequency range of the panel roll off. My calculations showed that it was because of the floor bounce. The panel's lower frequency range is not as directional as it is at higher frequency, so we still get some floor reflection. The difference between the primary signal and the reflection decreases with distance, and therefore the first null increases in frequency. We fixed that by developing a system of user-adjustable jumpers that raises the crossover frequency so that the woofer fills in the frequencies where the panel's not able to play. The Statement E2 also has similar compensation, because we had similar problems when it got into really big rooms. **tas**



TRUTH IN SOUND, EMBODIED



# NEOLITH™

Neolith is not for the faint of heart. As the embodiment of our philosophy of the truth in sound, its performance is unconstrained. In a world of small, the Neolith says size is no impediment. The Neolith is the culmination of over 30 years of MartinLogan passion, engineering innovation and dedication to the ultimate truth in sound.

[martinlogan.com](http://martinlogan.com)



  
**MARTIN LOGAN®**  
*Truth in Sound*